[0054] Storage **1508** provides a relatively large amount of "permanent" data storage, using nonvolatile solid state memory (e.g., flash storage) and/or a kinetic nonvolatile storage device (e.g., rotating magnetic disk drive). Storage **1508** may include both local storage and storage space on a remote server. Storage **1508** may store data as well as software components that control and manage, at a higher level, the different functions of the device **1500**.

[0055] In addition to storage **1508**, there may be memory **1514**, also referred to as main memory or program memory, which provides relatively fast access to stored code and data that is being executed by the processor **1512**. Memory **1514** may include solid state random access memory (RAM), e.g., static RAM or dynamic RAM. There may be one or more processors, e.g., processor **1512**, that run or execute various software programs, modules, or sets of instructions (e.g., applications) that, while stored permanently in the storage **1508**, have been transferred to the memory **1514** for execution, to perform the various functions described above.

[0056] The device **1500** may include communications circuitry **1502**. Communications circuitry **902** may include components used for wired or wireless communications, such as two-way conversations and data transfers. For example, communications circuitry **1502** may include RF communications circuitry that is coupled to an antenna, so that the user of the device **1500** can place or receive a call through a wireless communications network. The RF communications circuitry may include a RF transceiver and a cellular baseband processor to enable the call through a cellular network. For example, communications circuitry **1502** may include Wi-Fi communications circuitry so that the user of the device **1500** may place or initiate a call using voice over Internet Protocol (VOIP) connection, transfer data through a wireless local area network.

[0057] The device may include a transducer **1518**. Transducer **1518** may be a speaker and/or a transducer assembly such as that described in reference to FIGS. **1-13**. Transducer **1518** may be an electric-to-acoustic transducer or sensor that converts an electrical signal input (e.g., an acoustic input) into a sound or vibration output. The circuitry of the speaker may be electrically connected to processor **1512** and power source **1510** to facilitate the speaker operations as previously discussed (e.g, diaphragm displacement, etc).

[0058] The device **1500** may further include a motion sensor **1504**, also referred to as an inertial sensor, that may be used to detect movement of the device **1500**, camera circuitry **1506** that implements the digital camera functionality of the device **1500**, and primary power source **1510**, such as a built in battery, as a primary power supply.

[0059] While certain aspects have been described and shown in the accompanying drawings, it is to be understood that such embodiments are merely illustrative of and not restrictive on the broad invention, and that the invention is not limited to the specific constructions and arrangements shown and described, since various other modifications may occur to those of ordinary skill in the art. The description is thus to be regarded as illustrative instead of limiting. In addition, to aid the Patent Office and any readers of any patent issued on this application in interpreting the claims appended hereto, applicants wish to note that they do not intend any of the appended claims or claim elements to invoke 35 U.S.C. 112(f) unless the words "means for" or "step for" are explicitly used in the particular claim.

What is claimed is:

1. A dual function transducer assembly comprising:

a magnet motor assembly comprising a first magnet plate and a second magnet plate arranged in parallel to one another along a first axis;

a sound output assembly coupled to the magnet motor assembly, the sound output assembly comprising a piston and a voice coil, and wherein the voice coil is arranged to cause a vibration of the piston in a direction parallel to the first axis; and

a shaker assembly coupled to the magnet motor assembly, the shaker assembly comprising a first shaker coil and a second shaker coil arranged to cause a vibration of the magnet assembly in a direction parallel to a second axis that is perpendicular to the first axis.

2. The dual function transducer assembly of claim **1** wherein the magnet motor assembly is movably coupled to a transducer frame by a leaf spring.

3. The dual function transducer assembly of claim **1** wherein the voice coil is rotated ninety degrees relative to the first shaker coil and the second shaker coil.

4. The dual function transducer assembly of claim **1** wherein inward facing surfaces of the first magnet plate and the second magnet plate are attached to a center plate, and a pair of outer plates are attached to outward facing surfaces of the first magnet plate and the second magnet plate.

5. The dual function transducer assembly of claim **4** wherein the center plate and the pair of outer plates form at least three different magnetic gaps for receiving the voice coil, the first shaker coil and the second shaker coil.

6. The dual function transducer assembly of claim **5** wherein the at least three different magnetic gaps comprise regions of high magnetic flux density and, upon application of a current to the voice coil, the first shaker coil and the second shaker coil, the voice coil, the first shaker coil and the second shaker coil all move in directions that are parallel to a same plane.

7. The dual function transducer assembly of claim **1** wherein, upon application of a current, the sound output assembly and the shaker assembly are independently actuated.

8. The dual function transducer assembly of claim **1** wherein the piston and the voice coil comprise a first piston and first voice coil, and the sound output assembly further comprises a second piston and a second voice coil arranged along another end of the magnet motor assembly and operable to vibrate in a direction parallel to the first axis.

9. A dual function transducer assembly comprising:

a magnet motor assembly;

a first transducer component coupled to the magnet motor assembly, the first transducer component operable to move in a direction parallel to a first axis to produce a first transducer function; and

a second transducer component coupled to the magnet motor assembly, the second transducer component operable to move in a direction parallel to a second axis to produce a second transducer function, the second axis is perpendicular to the first axis, and the first axis and the second axis are within a same plane.

10. The dual function transducer assembly of claim **9** wherein the first transducer function is a sound output.

11. The dual function transducer assembly of claim **9** wherein the first transducer component comprises a voice